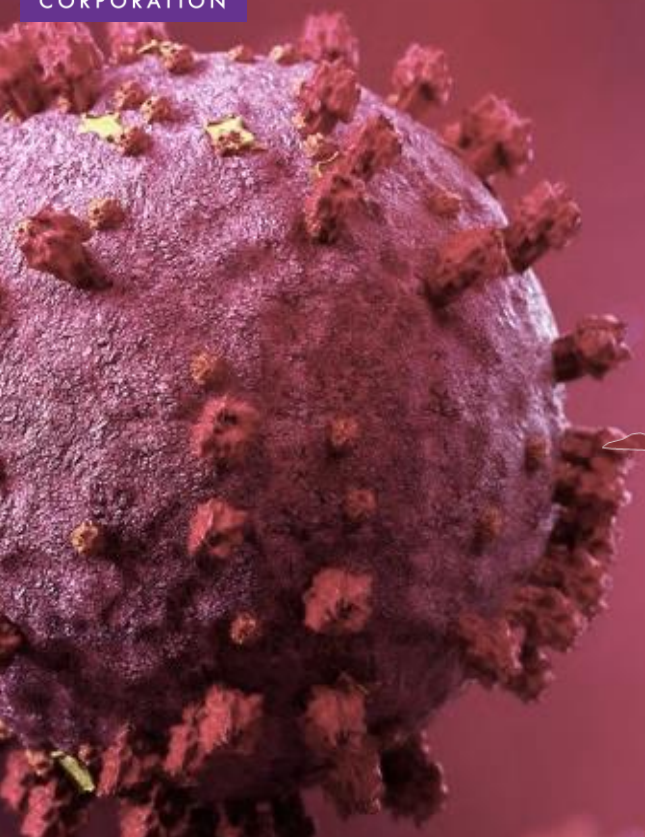
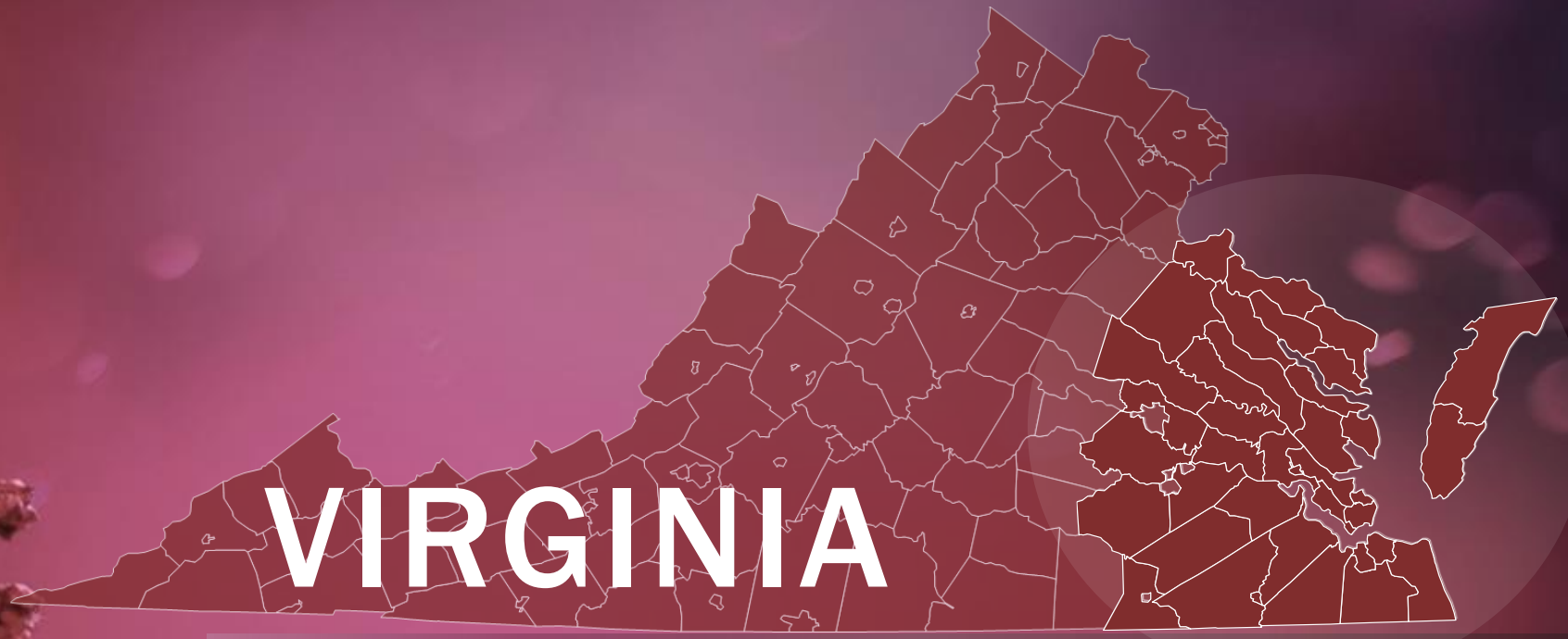




VIRGINIA

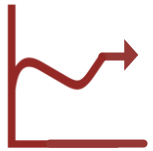
COVID-19 Update February 25th, 2021

Carter C. Price, Ph.D.

A team of RAND researchers was asked by the Commonwealth of Virginia to review available information on COVID-19 models of the Commonwealth to determine the strengths and weaknesses of each model and their relevance to decisionmaking. The information in this presentation is intended to keep policymakers abreast of the latest findings of the research team.

This research was sponsored by the Commonwealth of Virginia and conducted by the RAND Corporation. RAND is a research organization that develops solutions to public policy challenges to help make communities throughout the world safer and more secure, healthier and more prosperous. RAND is nonprofit, nonpartisan, and committed to the public interest. For more information, visit www.rand.org.

Bottom-Line Up Front



Virginia's total case levels remain high but continue to decline

- Hospitalizations are declining but remain somewhat elevated
- Testing has trended lower

Vaccine administration is accelerating

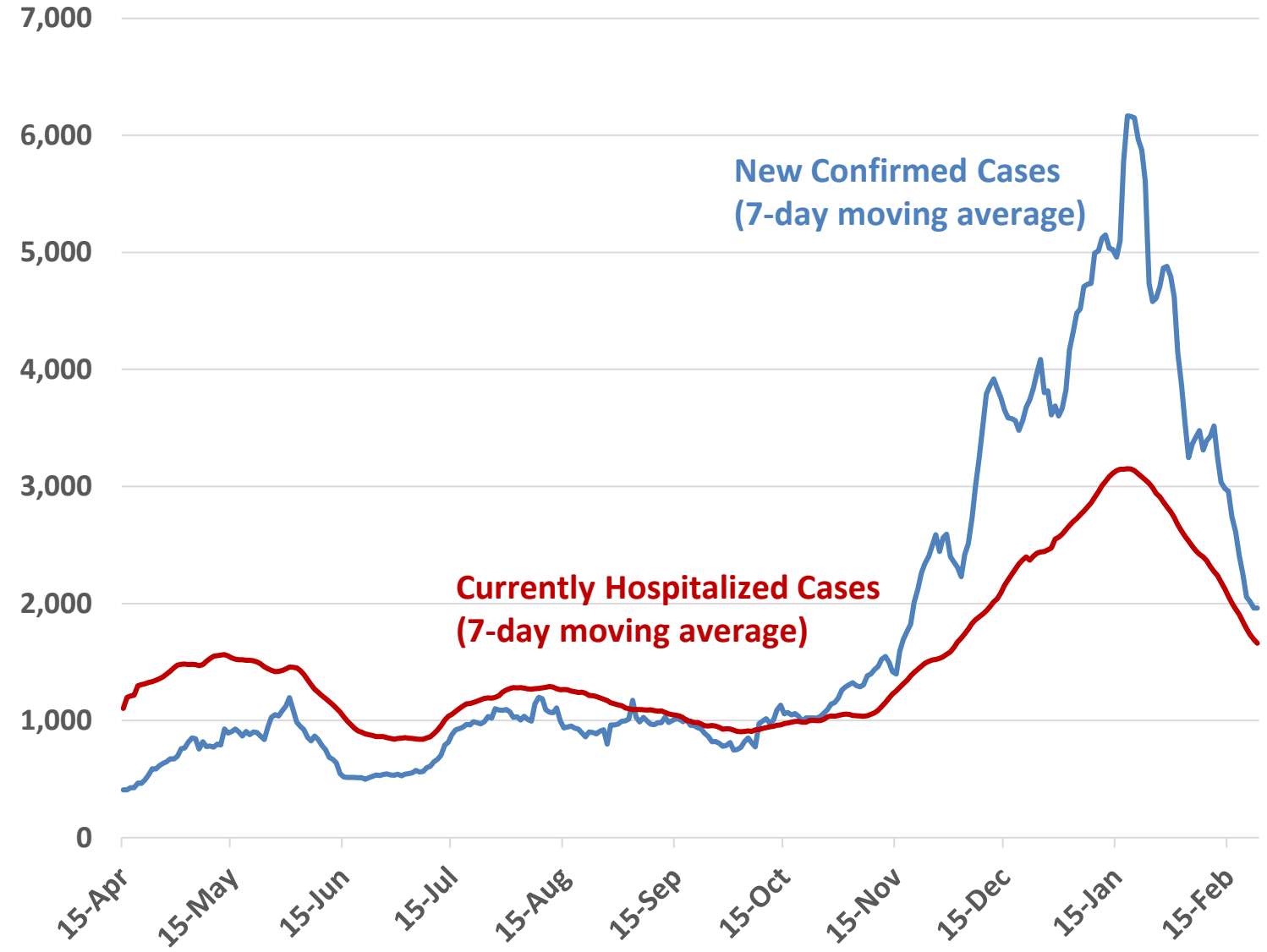
- Stockpiles have declined
- Supply will remain a constraint for another month or two
- Efforts to increase vaccine demand will be needed to reach some populations

New COVID variants have been detected in Virginia and could accelerate spread

Model forecasts may be less accurate because behavior is driving growth

- Models will continue to be useful for comparing policies and exploring scenarios

Cases and hospitalizations have declined significantly but remain high relative to previous waves



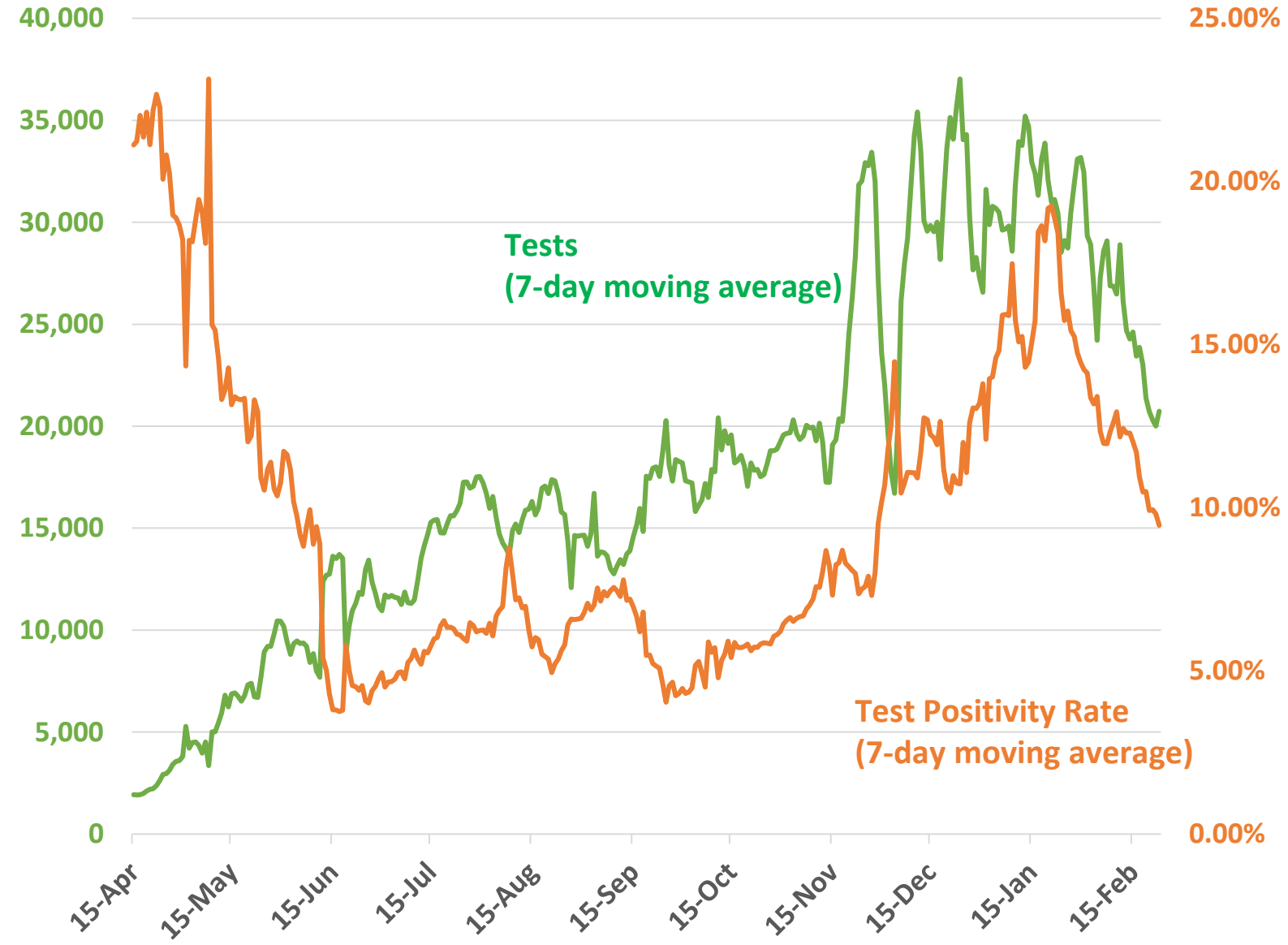
New confirmed cases have dipped below 2,000/day on average

- This is the level from mid-November

Currently hospitalized cases peaked in mid-January

- Hospitalizations are likely to continue to fall for the next few weeks
- The decline in hospitalizations will typically be slower than that of cases

Testing have drifted to the levels before the third wave



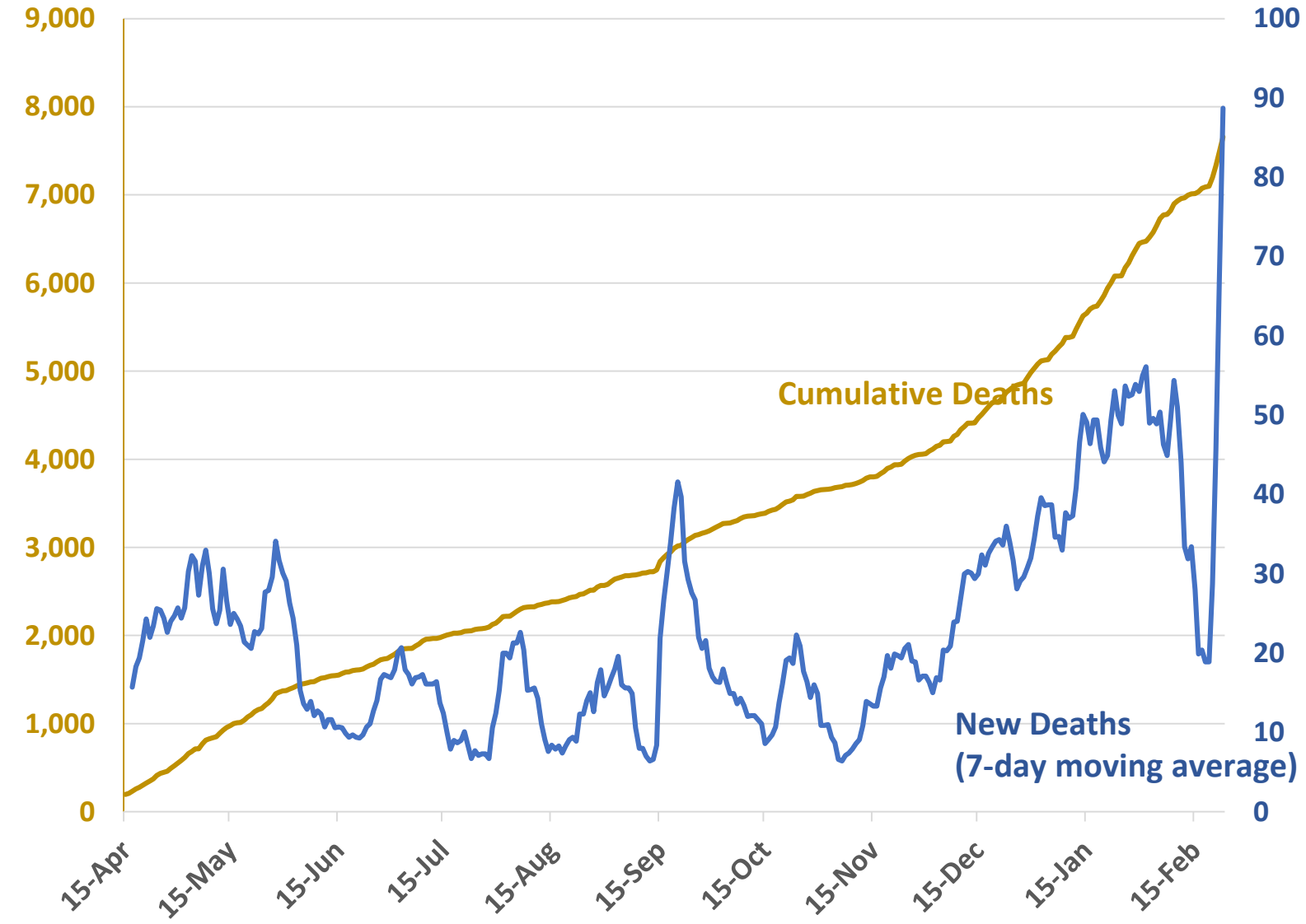
Tests per day have averaged around 20,000

- This is lower than the 30,000 to 35,000 range that had been maintained since November

The test positivity rate is roughly 9 percent

- Five percent is a suggested target
- At this rate, the case count levels are likely to be slightly less reliable

The new deaths from COVID remain elevated



Cumulative Deaths have passed 7,600

- At 90 per 100,000, Virginia's death rate from COVID remains well below the national rate of 153 per 100,000

New deaths spiked the last week

- The drop in the prior week and the spike this week were driven, in part, by a lag in reporting or data entry
- Death rates typically lag case rates by several weeks

Case levels have continued to decline but remain very high in pockets

CASE COUNT

Source: VDH

Yellow indicates at least 30 cases per 100,000

- This is rescaled from last week when the scale ended at 40 cases per 100,000

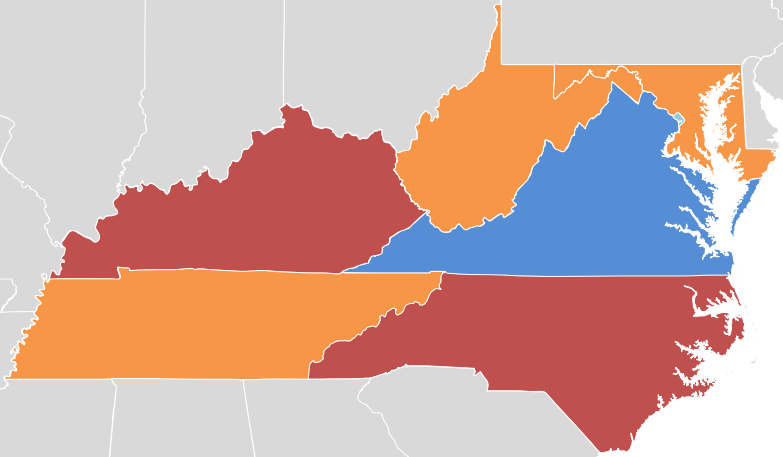
Case levels have declined across the Commonwealth

- 51 percent of counties have fewer than 20 cases per 100,000
- 12 percent of counties have fewer than 10 cases per 100,000

These data were updated February 24th and represent a seven-day average of the previous week

The spread has declined substantially in neighboring states

Over the last 7 days, Virginia had 23.0 (-28% from last week) new confirmed cases per day per 100,000



Very high case loads (>20):

- North Carolina (27.2 new cases per 100k, -18% from last week)
- Kentucky (26.4, -14%)

High case loads (10-20):

- West Virginia (16.1, -22%)
- District of Columbia (14.4, -16%)
- Tennessee (13.7, -46%)
- Maryland (12.8, -3%)

Lower case loads (<10): None

These data were updated February 24th and represent a seven-day average of the previous week

Six percent of Virginians are fully vaccinated and seven percent have received the first shot

Age	0-9	10--19	20-29	30-39	40-49	50-59	60-69	70-79	80+	Total
Fully Vaccinated	0	2,703	52,034	75,441	79,926	84,493	73,666	81,542	66,850	516,655
% Full	0.0%	0.2%	4.5%	6.4%	7.4%	7.5%	7.5%	13.3%	21.5%	6.1%
Partially Vaccinated	0	4,248	46,860	67,471	75,379	89,694	128,935	143,779	78,677	635,043
% with Partial	0.0%	0.4%	4.1%	5.8%	7.0%	8.0%	13.2%	23.4%	25.3%	7.4%
Confirmed Cases	23,758	56,695	105,857	90,388	81,954	80,795	55,620	30,588	22,452	548,107
% Confirmed Cases	2.4%	5.2%	9.2%	7.7%	7.6%	7.2%	5.7%	5.0%	7.2%	6.4%

Source: VDH, February 24th

Vaccinations are being rolled out in Virginia

- 2,121,485 doses have been distributed as of February 24th
- Virginia's program has administered 93 percent (1,017,633 out of 1,093,740) of its first doses
- It has also administered 54 percent (311,113 out of 580,275) of its second doses
- The Federal Long-Term Care Facility Program has administered 85 percent (196,315 of 223,470) of doses

At some point in the next month or two, vaccine supply will likely be less of a constraint, and growing the vaccination rates will rely on improving demand

We've been monitoring recent, relevant literature

Choi et al. examined the role variability in transmission rates had in the spread of COVID in Massachusetts with a particular focus on the rapid decline in January and the implications for herd immunity

- The authors used town-level data from April 15th, 2020 to February 9th, 2021 to identify variations in spread
- Towns with high (low) rates of spread in 2020 saw a rapid (slow) decline in cases in January of 2021
- They note that this variation implies that the standard estimate for herd immunity may overestimate the true level
- However, if behavior and NPIs are relaxed, communities with low levels of COVID would be the most vulnerable

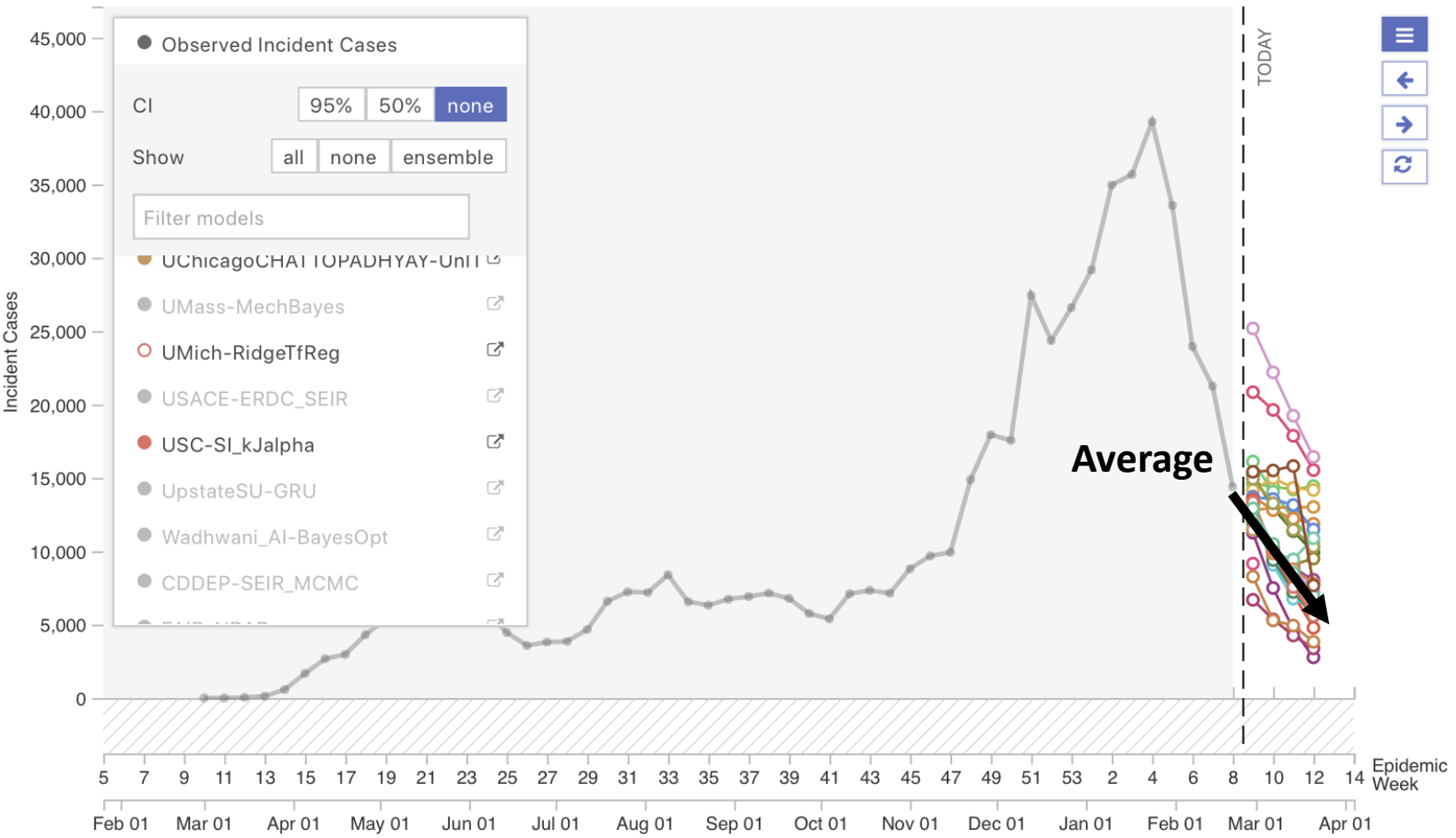
Gold et al. investigated COVID clusters among Georgia educators in December and January

- The authors examined nine clusters with 13 educators, 32 students, and 18 household members
- Educator-to-educator and educator-to-student transmission appeared to be the primary modes for the clusters
- While the sample was small, this study highlights the importance of vaccinating teachers

Gordon et al. studied the effect COVID lockdowns had on the exposure to spoken language for children with cochlear implants

- The authors collected data on 45 children with cochlear implants in Ontario, Canada
- They found a large decline in the exposure to spoken communication among these children
- This could lead to delays in social, language, and cognitive development
- This work builds on the literature indicating that the indirect effects of COVID include negative consequences for childhood development and skill acquisition that may require intervention

The models are generally forecasting a steep decline in cases



There is broad agreement among the forecasts that there will be a steep decline in cases over the next few weeks

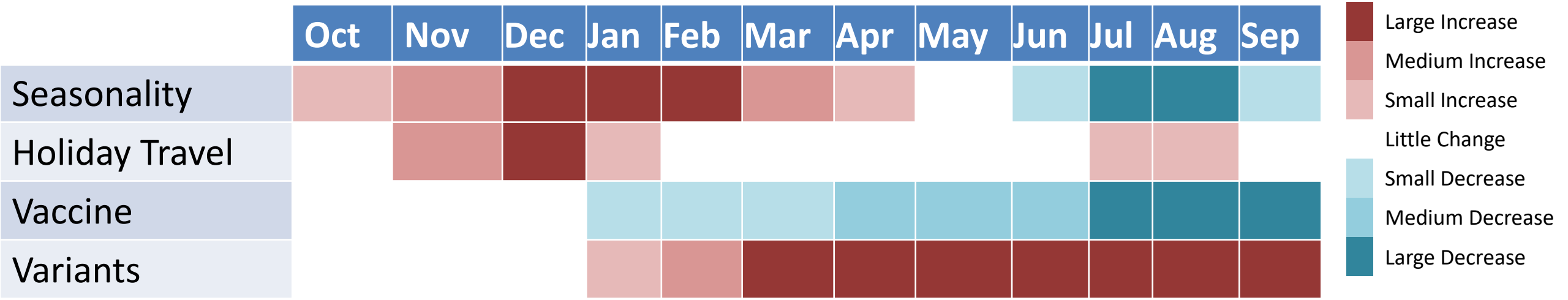
- The models differ on specific levels more than change
- The variation between models typically arises from different definitions (e.g., cases versus infections)

Many of the model predictions lag the data

- This means that they match the trends in retrospect but not as forecasts

Source: COVID-19 Forecast Hub, https://viz.covid19forecasthub.org/
Accessed February 17th

There are several factors driving the spread



There are several factors that will continue to drive the spread for the next few months

- Seasonal effects for COVID-19 appear to have increased spread during colder weather
- Holiday activities appear to have increased spread but are largely over for now
- The vaccines may begin to meaningfully slow the spread in the next month or two, but maintaining the rate of vaccine administration will require outreach to skeptical subpopulations
- The B.1.1.7, B.1.351, and P.1 Variants of Concern may increase the rate of spread as they enter Virginia, and future variants could also change the severity or the efficacy of vaccines

There are some key unknowns about the current spread

- How many people have been infected with COVID-19 and have lingering protection?
- To what degree are people complying with best practices for prevention?

Discussion and Questions